

Profile of hospitalizations in a municipality in Minas Gerais, Brazil**Perfil das internações hospitalares em município de Minas Gerais****Perfil de las hospitalizaciones en municipio de Minas Gerais, Brasil****Received: 30/08/2016****Approved: 10/07/2017****Published: 30/03/2018****Gisélia Gonçalves de Castro¹****Marco Aurélio Ferreira de Jesus Leite²****Gilberto Martins Junior³****Kadmyla Rosa e Silva⁴****Arlindo Gonçalves Reis Junior⁵**

The aim of the study was to analyze the profile of hospitalizations in the city of Patrocínio (MG), Brazil in the year 2015. This is a quantitative, descriptive and cross-sectional study, which consisted in a systematic search in the electronic files of the SUS Hospital Information System, provided by DATASUS. 5,326 hospitalizations with an average length of stay of 4.8 days were recorded. Elderly (>60 years) remained in hospital longer (5.53 days) and the highest mortality rate was observed in elderly patients older than 80 years (n=43). Women prevailed in the hospitalizations (58.9%), and the main causes of hospitalization were pregnancy, childbirth and puerperium (33.1%). Diseases of the circulatory system were also among the most frequent causes of hospitalization in both genders (men=15.9%; women=12.5%). Thus, the municipality should invest in prevention campaigns, but also prepare health professionals to deal with the specific demands of care of the most frequent causes of hospitalization.

Descriptors: Health care provision; Hospitalization; Public health.

O objetivo deste estudo foi analisar o perfil das internações na cidade de Patrocínio (MG) no ano de 2015. Trata-se de um estudo quantitativo, descritivo e transversal, que produziu uma busca sistematizada nos arquivos eletrônicos do Sistema de Informações Hospitalares do SUS, disponibilizado pelo DATASUS. Foram registradas 5,326 hospitalizações com internação média de 4,8 dias de permanência. Os Idosos (>60 anos) permaneceram mais tempo internados (5,53 dias) e a maior taxa de mortalidade foi observada em idosos com idade maior que 80 anos (n=43). Mulheres geraram mais internações (58,9%), tendo como principais causas de internamento, a gravidez, o parto e o puerpério (33,1%). As doenças do aparelho circulatório também foi uma das causas mais frequentes de internações em ambos os gêneros (homens=15,9%; mulheres=12,5%). Assim, o município deve investir em campanhas preventivas, como também, preparar os profissionais de saúde perante as demandas específicas de cuidados das causas de internações mais frequentes.

Descritores: Assistência à saúde; Hospitalização; Saúde pública.

El objetivo de este estudio fue analizar el perfil de las internaciones hospital de la ciudad de Patrocínio (MG), Brasil en el año 2015. Se trata de un estudio cuantitativo, descriptivo y transversal, que produjo una búsqueda sistemática en los archivos electrónicos del Sistema de Información Hospitalaria del SUS, proporcionada por DATASUS. Se registraron 5.326 hospitalizaciones con una estancia media hospitalaria de 4,8 días de estancia. Ancianos (>60 años) permanecieron en el hospital más tiempo (5,53 días) y se observó la mayor tasa de mortalidad en pacientes ancianos mayores de 80 años (n=43). Las mujeres generan más hospitalizaciones (58,9%), las principales causas de hospitalización fueron el embarazo, el parto y el puerperio (33,1%). Los trastornos del sistema circulatorio fue también una de las causas más frecuentes de hospitalización en ambos sexos (hombres=15,9%; mujeres=12,5%). Por lo tanto, el municipio debe invertir en las campañas de prevención, sino también preparar a los profesionales de la salud con respecto a las demandas específicas de atención de las causas más frecuentes de hospitalización.

Descriptores: Prestación de atención de salud; Hospitalización; Salud pública.

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INTRODUCTION

Hospital care is the center of interest of collective health protection due to its role in physical integrity, and also of research at different levels of public services due to the economic expenditures involved¹. In view of the importance of hospital care, public health managers have sought to investigate and deploy more efficient and effective resources and strategies to achieve health recovery in a more economic manner. Thus, research in the area of hospital care and services is essential to leverage this intention, as well as evidence-based professional practice².

Thus, knowing the factors associated with the use of hospital services, characterization of users and of the main outcomes that led to the search for the hospital service are fundamental information for structuring and incorporating of new policies to increase equity in the health system, reducing "waste" of economic resources and promoting greater efficiency in the hospital care for the population.

There are different types of contexts that lead to the need for hospital care and hospitalizations, involving natural (infectious, viral, chronic and/or acute) and external (accidents and violence) causes. In Brazil, chronic noncommunicable diseases caused 70% of all deaths in 2007 and are considered the most prevalent morbidities in the country^{3,4}. Nevertheless, the control of accidents is also a serious challenge in the country, especially in view of the severity of traffic-related injuries, aggressions and falls. A total of 973,015 hospital admissions due to external causes were recorded in 2011, 38.4% for falls and 15.8% for ground transportation accidents⁵.

The epidemiological analysis of hospitalizations is in improvement phase, but already provides important information on all-cause morbidity and mortality⁶. Although restricted to public services, the SUS Hospital Information System (HIS/SUS) also provides data that have gradually more contributed for analyses that go beyond the economic scope and allow to know the epidemiological behavior of hospital admissions^{7,8}.

The demographic and clinical data made available by the HIS/SUS in the Authorization for Hospital Admission (AHA) provide a description of hospital morbidities within the scope of the SUS's own and contracted services. It is estimated that the coverage of the system reaches 70 to 80% of hospitalizations in Brazil, with variations between macro regions and states depending on the population that uses private health insurances⁹.

As phenotypic and socioeconomic characteristics as well as the specificity and sociocultural need vary between macro-regions¹⁰, it is necessary to explore the hospital profile of each micro and macro-region in order to gather more specific information for future interventions. Furthermore, knowing the profile of hospitalizations allows health professionals to be prepared (material resources and scientific evidence) to give priority in their work to the demands of hospitalizations in the specific locality. In this context, the objective of the present study was to analyze the set of information generated and made available by the Hospital Information System (HIS) to characterize and describe the profile of the hospitalizations of a municipality in the countryside of Minas Gerais.

METHOD

This is a descriptive, cross-sectional quantitative research whose data were obtained from a systematized search in the computerized databases made available by the Ministry of Health (Unified Health System Database - DATASUS).

Data were collected from the electronic file of the Hospital Information System (HIS) of the Unified Health System (SUS) available at the official website of DATASUS. The present study was carried out respecting the premises of Resolution 466/2012 of the National Health Council. Evaluation of the Ethics Committee because was not necessary because the study did not involve the direct or indirect participation of human beings.

DATASUS provides information that can be used to support objective analyses of the health situation, evidence-based decision-

making, and the elaboration of health programs and actions. The assessment of the health status of the population is a tradition in public health. It began with the systematic recording of mortality and survival data (Vital Statistics - Mortality and Live Births). With the advances in the control of infectious diseases (information on epidemiological rates and Morbidity) and with a better understanding of the concept of health and its population determinants, the analysis of the health situation began to incorporate other health status dimensions.

Initially the electronic address was accessed through the link <http://www2.datasus.gov.br/>

Subsequently, the topic "Health Information (TABET)" and then "Epidemiological rates and Morbidity" and "Hospital Morbidity in the SUS (HIS/SUS) were accessed, then choosing the option "General, by place of hospitalization - from 2008 onwards". Thus, after narrowing the search to the state of Minas Gerais, standardized filters were used in the following information: content (number of hospitalizations, number of deaths and mortality rate), period (reference year 2015), ICD-10 chapter (all diseases), ICD-10 morbidity (all diseases), age group (all ages), sex (male and female), in the municipality of Patrocínio, a city in the countryside of the state of Minas Gerais. The data search was performed between July and August of 2016.

In the analysis of the data, descriptive statistics were used to determine the characteristics of admissions and deaths, specifically regarding the number per age group, gender and causes.

RESULTS

A total of 5,326 hospitalizations were registered at the HIS/SUS in MG, representing approximately 82,471 individuals and 6.4% of the population, according to the 2010 IBGE census. These hospitalizations generated a total final cost of R\$ 4,365,717.51 in terms of hospital services and professional services, according to data registered in DATASUS.

The age group with the greatest recurrence of hospitalizations was 20 to 29 years, followed by 30 to 39 years. As for the length of hospital stay, there was a predominance of the age group of 50 and 59 years, and it was also observed that the length of stay varied between 2.1 days among patients aged 10 to 14, and 6.6 days among patients aged 50 to 59, with a mean of 4.8 days. The death rate among hospitalized patients was around 3.62% (193 cases), being higher in the age groups that represent people aged over 60 (Table 1). It was also observed that 61.5% of the hospitalizations occurred for clinical procedures (3,276 paid AHAs) and the rest (38.5%) for surgical procedures (2,050 paid AHAs) in the period evaluated.

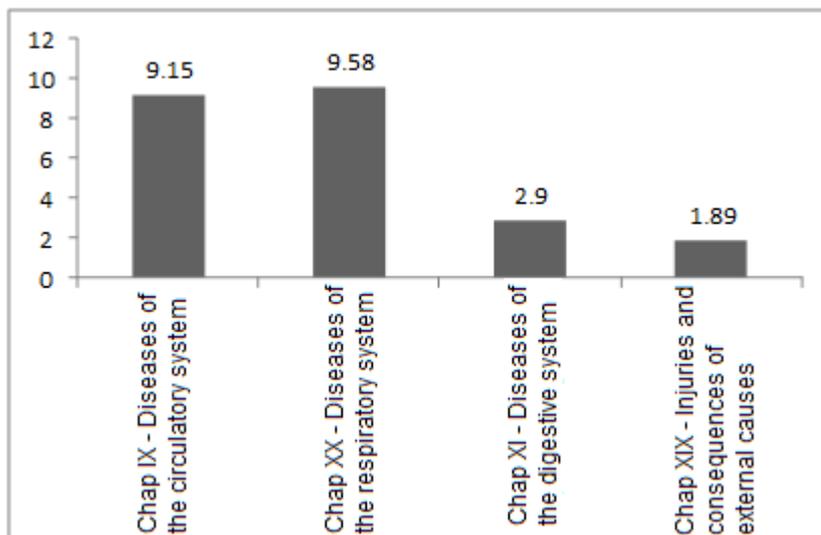
Table 1 - Hospitalizations by age group, according to the average length of stay, deaths and death rate in Patrocínio (MG), 2015.

Age Group	Hospitalizations (n)	Relative frequency (%)	Mean Length of stay (days)	Deaths (n)	Rate Mortality rate (%)
Under 1 year	177	3.3	4.9	1	0.56
1 to 4 years	183	3.4	4.0	-	-
5 to 9 years	104	2.0	2.6	-	-
10 to 14 years	111	2.1	2.1	-	-
15 to 19 years	354	6.6	2.7	1	0.28
20 to 29 years	1007	18.9	3.4	6	0.60
30 to 39 years	819	15.4	4.6	12	1.47
40 to 49 years	722	13.6	6.0	22	3.05
50 to 59 years	605	11.4	6.6	28	4.63
60 to 69 years	437	8.2	5.2	36	8.24
70 to 79 years	483	9.1	5.8	44	9.11
80 years and +	324	6.1	5.6	43	13.27
Total	5326	100.0	4.8	193	3.62

Source: Ministry of Health - DATASUS, 2015.

Graph 1 highlights the mortality rate from hospitalizations. It is observed that hospitalizations due to diseases of the

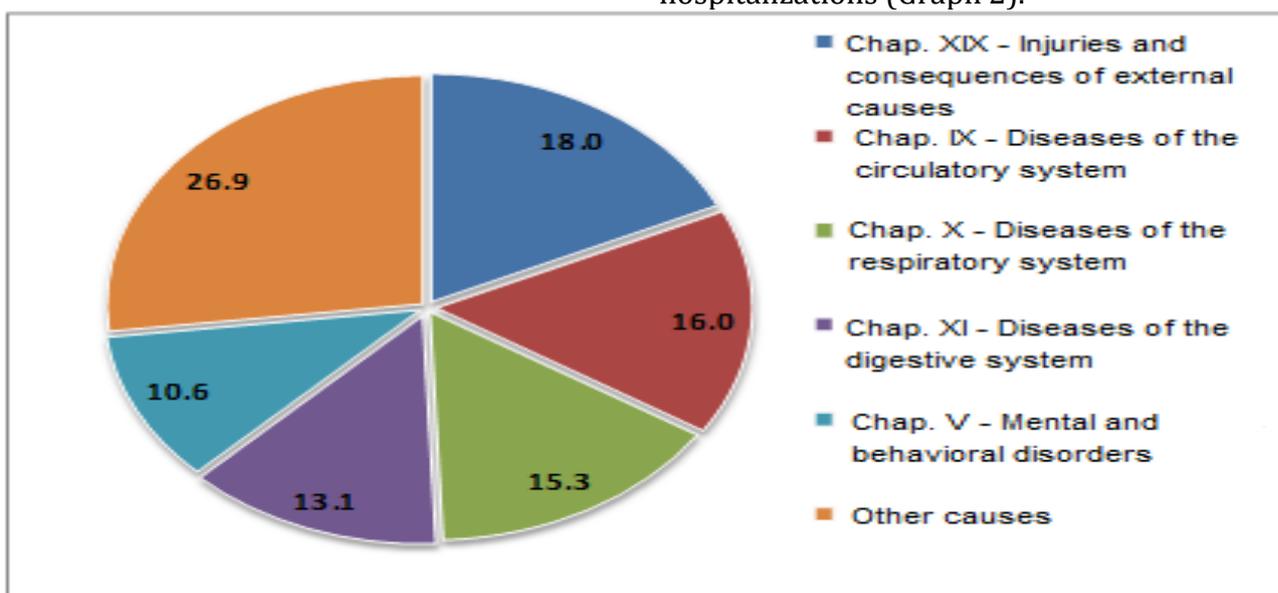
respiratory system followed by those of the circulatory system had higher mortality rates.



Graph 1 - Death rate in the major causes of general hospitalization according to ICD-10 chapters in Patrocínio (MG), 2015.

The mean length of stay for each cause was: diseases of the respiratory system (6.1 days), diseases of the circulatory system (5.3 days), diseases of the digestive system (3.6 days), external causes (2.5 days), and pregnancy, childbirth and puerperium (2.2 days). Regarding gender, 58.9% of the hospitalizations in the period evaluated corresponded to female patients,

and 41.1% to males. The five major causes of hospitalization among male patients were injuries and consequences of external causes, with 18.0%, followed by diseases of the circulatory system (15.9%), diseases of the respiratory system (15.3%), diseases of the digestive tract (13.1%) and mental and behavioral disorders (10.6%). The other causes together accounted for 26.9% of the hospitalizations (Graph 2).



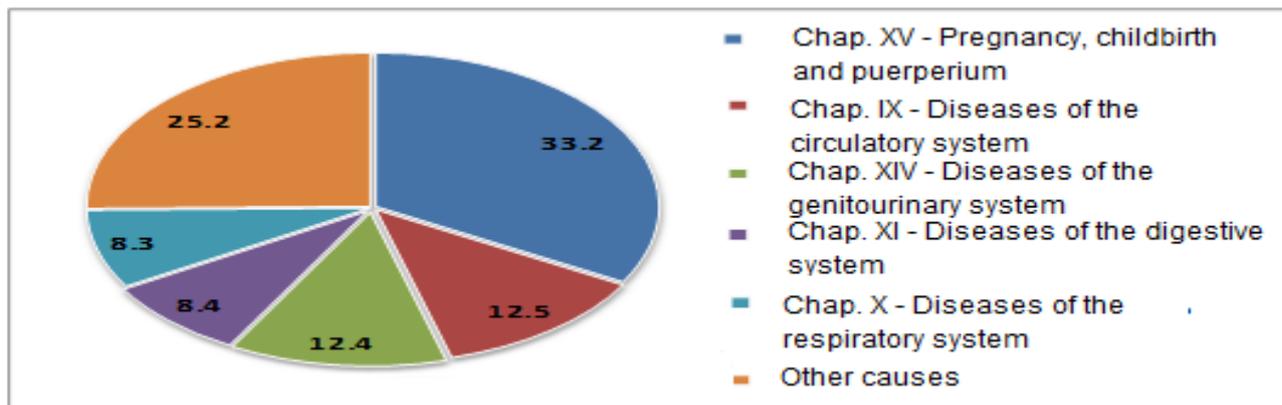
Graph 2 - Main causes of hospitalization among men according to ICD-10 chapters in Patrocínio (MG), 2015.

In women, the five major causes of hospitalization were pregnancy, childbirth, puerperium (33.1%), diseases of the

circulatory system (12.5%), diseases of the genitourinary system (12.4%), diseases of the digestive system (8.4%) and diseases of the

respiratory system (8.3%). The other causes together accounted for the percentage of 25.2% (Graph 3). The most frequent cause of hospitalization was pregnancy, childbirth and puerperium (19.5%), with 1040 hospitalizations, followed by diseases of the circulatory system (13.9%), diseases of the respiratory system (11.2%), diseases of the

digestive system (10.3%) and external causes (9.9%). In the group of causes related to pregnancy, childbirth and puerperium, there were cases of single spontaneous delivery (47.8%), followed by obstructed labor (27.6%), complications of pregnancy (13.8%) and spontaneous abortion (7.8%).



Graph 3. Causes of hospitalizations among women according to ICD-10 chapters in Patrocínio (MG), 2015.

DISCUSSION

Brazil has a socioeconomic and socio-cultural diversity that can directly and indirectly influence and lead to differences in the profile of hospitalizations between macro- and micro-regions¹¹. In this sense, the objective of the present study was to describe the specific profile of hospitalizations of the municipality of Patrocínio in the countryside of Minas Gerais in the year 2015. The total number of hospitalizations was 5,326, representing 6.4% of the population of the municipality studied, a percentage below the national rates¹⁰. The national estimate of hospital admissions, in general, is 7 to 9% of the local population per year¹⁰.

As for the causes of hospitalization and length of hospital stay, the study pointed out distinct characteristics depending on the age group. Individuals aged 20 to 29 years had the highest frequency of hospitalizations (18.9%), but patients aged 50 to 59 had the longest stay in the hospital (6.6 days). The higher frequency of young individuals may be related to hospitalizations due to external causes such as traffic accidents.

Road accidents are the second most prevalent cause in recent years for admissions due to external causes, especially among younger men¹². Hospitalization of older adults

was reported in a study carried out in a city in the countryside of Rio de Janeiro, in which length of stay was more than 30 days, with digestive diseases being the main cause (23%)¹³. The delayed discharge among elderly individuals may be related to difficult recovery, which is worsened by the aging process concomitantly with the decline of physiological functions¹⁴.

Although studies have shown that hospitalizations due to external causes are predominant in the male gender^{12,15}, in the present study, females predominated in the hospitalizations (for general causes) registered in the studied city. The greater need for hospital care for this gender may be related to higher birth rates (pregnancy, delivery, puerperium) in the analyzed city. The process of delivery was the most frequent among the causes for hospitalizations in the SUS in the period of 1999 to 2006, which accounted for 19.4% of the total number of hospitalizations, and 13% of total expenses with hospitalization in the country in the analyzed period^{7,16}. Thus, it should be noted that the municipality in question should invest in gynecological care, due to the frequency of pregnancy and, consequently, greater risks of infant mortality.

A common aspect found in the profile of hospitalizations with respect to genders was the frequency of hospitalizations due to complications of circulatory diseases. They were the second most frequent cause of hospitalization in both genders and the factor that caused the greatest number of deaths in the municipality. Other studies^{11,17} have also demonstrated that diseases of the circulatory system represent a national health problem and one of the most frequent reasons for the search for hospital care. Notably, ischemic heart diseases are responsible for high expenses in hospitals, taking into account the total cost of hospitalizations registered in the territory national. Among the main causes of heart disease, regardless of the place, are those related to inadequate lifestyle habits, such as physical inactivity, obesity and, curiously, smoking, which appears to be more related to circulatory diseases in comparison to diseases of the respiratory system¹⁷⁻¹⁹.

The characteristics and profile of hospitalizations is a general reflection of the socioeconomic, cultural and phenotypic needs and characteristics of the analyzed place. Public health policy campaigns and strategies can minimize hospitalizations and the consequent financial costs incurred, especially those related to natural causes. An example for this premise was highlighted by a recent study in 2007 in Pelotas (Rio Grande do Sul) that estimated a reduction of hospitalization costs for diseases of the circulatory system and diabetes resulting from an increase in the level of physical activity²⁰ as a measure of low cost and strong impact. In this study there would be an economic impact of 50% of reduction in hospitalization costs for diseases of the circulatory system and 13% of hospitalizations for diabetes if the entire population became physically active.

One of the main limitations of the study was not to offer the possibility of understanding cause-and-effect relationships from risk variables for diseases, characteristics of hospitalizations, and the application of inferential statistics. Still, the study presents important characteristics of the current profile of hospitalizations in the

countryside of the state of Minas Gerais, specifically the municipality of Patrocínio (MG) in the year 2015.

Furthermore, it is important to highlight the relevance of studies that use HIS/SUS data because they can guide possible strategies for the prevention of morbidities and mortality in relation to the reality reported in hospitalizations and medical records²¹.

CONCLUSION

Hospitalizations in the municipality of Patrocínio, countryside of Minas Gerais, in 2015 were more common among individuals with ages ranging from 20 to 29 years, and older patients (50 to 59 years old) had a longer stay in hospital facilities. Regarding gender, men were hospitalized mainly due to road accidents and women due to gestational complications/care.

Despite the distinctions, women had a higher frequency of hospitalizations. Diseases of the circulatory system were one of the main causes of hospitalizations in both genders. Thus the municipality should invest in prevention campaigns as well as prepare health professionals for the specific demands of care in the most frequent hospitalizations.

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CONTRIBUTIONS

All authors worked at the various stages of the development of the research and writing of the article.

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